

A special additional rebate of 6s. per ton on muriate of potash 60 per cent. and 5s. per ton on muriate of potash 50 per cent. K_2O is also allowed on shipments of 1,000 tons taken during the May-July period. To large buyers a rebate of £1 2s. 6d. per ton was granted in 1957-58 on orders of 25,000 tons; in 1958-59 this figure was increased to £1 17s. 6d.

290. The company does not publish its scale of quantity rebates. Apart from Fisons and I.C.I., who are aware of the complete scale, customers know the scale only up to the point applicable to them.

(3) M. W. Hardy & Co. (Mercantile) Limited

291. M. W. Hardy & Co. (Mercantile) Ltd. was appointed sole distributor for Russian potash in the United Kingdom from 1st January, 1958*. The selling prices for this material are fixed by the United Kingdom company and are calculated by reference to general market conditions. The prices are all c.i.f. United Kingdom port. Quantity rebates are subject to negotiation with the buyer.

(4) Dead Sea Works Limited

292. Potash from Israel is sold in the United Kingdom by the Dead Sea Works Limited, mainly to large manufacturers such as I.C.I. and Fisons. Up to the end of 1956 the potash had been imported in bags but subsequently the Dead Sea Works Ltd. has had facilities for handling in bulk and since 1956 practically all shipments have been in bulk. The K_2O content of the material was initially 60 per cent., but has been 61 per cent. minimum since the latter part of 1957. A price list is not issued in the United Kingdom and it is the company's policy to sell at the best price obtainable, taking into account freight from Haifa to the United Kingdom port and "a reasonable yield f.o.b. Haifa".

CHAPTER 9. THE SUPPLY OF PHOSPHATIC FERTILISERS

(Classes (c), (d) and (e))

I. Class (c): SUPERPHOSPHATE, SINGLE AND TRIPLE

293. Single and triple superphosphate are supplied both for straight use and mixing, and the reference is concerned with both forms of supply. Single superphosphate has been manufactured in this country since the 1840s. Triple superphosphate was manufactured on the Continent for a time in the earlier part of this century and was imported from America during the 1939-45 war. Fisons began to manufacture it in 1952. In recent years the use of straight single superphosphate has declined and a similar tendency seems to be shown by straight triple superphosphate. According to the figures of deliveries to farmers compiled by the Agricultural Departments, 164,187 tons of both products were consumed straight in 1953-54 while the figures for 1956-57 and 1957-58 were 115,977 and 111,332 tons respectively.† The water-soluble P_2O_5 content of these deliveries was 37,517, 27,484 and 26,315 tons respectively.

* Before this, in 1956-57, Stratton Chemicals Ltd. had acted as agent, for the import of Russian potash, of a Dutch company which held the concession for potash from the Russian State Trading Organisation.

† The figures for straight use are based on subsidy returns and may be under-estimated.

A. Single Superphosphate

294. Single superphosphate is manufactured and supplied by Fisons, Scottish Agricultural Industries Ltd. (S.A.I.), and twelve other producers. The manufacturers of superphosphate are also manufacturers of compounds and retain part of their production for their own use. Sales by these manufacturers have accounted for the greater part of supplies in the United Kingdom in recent years. The balance has been accounted for by sales of certain Board of Trade stocks (of home origin); these sales amounted to 5,296 tons in 1957-58.* Total supplies of single superphosphate amounted to 271,814 tons in 1956-57 and 255,161 tons in 1957-58, of which approximately 98,200 and 94,680 tons respectively were sold for straight use. The two largest suppliers are Fisons and S.A.I.

(1) Fisons Limited

Production

295. Fisons manufactured single superphosphate in 1957-58 at eleven of its works, the comparative sizes of which, in terms of output, are shown in Appendix 7. Manufacture is carried out by the Broadfield and other continuous processes. Fisons has contributed certain improvements to the design of the Broadfield den. Total production amounted to about 456,000 tons in 1956-57 and 406,000 tons in 1957-58 of which about 335,000 and 310,000 tons respectively were retained for use in compounds.

Raw materials

296. *Phosphate rock.* Fisons' purchases of phosphate rock in 1957-58 amounted to nearly 400,000 tons of which about three-quarters was of North African origin; the greater part of the latter was purchased from the Comptoir des Phosphates de l'Afrique du Nord and the rest from the Board of Trade. Supplies were also obtained from Nauru, through the British Phosphate Commissioners and, in smaller quantities, from Florida and Russia. The grades taken in terms of tricalcium phosphate content comprised 75-77 per cent. (Moroccan), 65-68 per cent. (Gafsa), 83 per cent. (Nauru), 74-75 per cent. (Florida) and 84 per cent. (Russia). The terms on which Fisons buys from the Comptoir have been regulated by a two years' agreement for the period 1st July, 1957, to 30th June, 1959, and by separate contracts for each of the two years. The quantities and grades are prescribed for a year, and prices for a half-year, at a time. An invoice rebate is given in consideration of Fisons obtaining all its requirements from the North African mines with the exception of a specified amount. As already explained, the prices and terms are substantially the same as those paid by other United Kingdom manufacturers. Fisons, as an associated charterer, uses the shipping arrangements negotiated by the Phosphate Rock Agency Ltd. (P.R.A.) for supplies from North Africa and Nauru (see paragraphs 99-101). For single superphosphate production the kinds of rock principally used are Moroccan and Nauru.

297. *Sulphuric acid.* Fisons manufactures about half its requirements of sulphuric acid for the production of superphosphate (single and triple), the

* Sales are continuing. It is understood that the total stockpile was about 61,000 tons and that selling will be completed by April, 1960.

rest being bought from outside. In 1957-58 its output amounted to nearly 135,000 tons, of which 69 per cent. was made from sulphur, 24 per cent. from pyrites and 7 per cent. from spent oxide. Of its outside supplies about 38,000 tons were obtained from the United Sulphuric Acid Corporation Ltd. which manufactures acid from anhydrite and of which Fisons is a substantial shareholder (see paragraph 224). Fisons finds its own production of acid from sulphur the most economical. It took a less pessimistic view of the threat of sulphur shortage in 1950 than did the Government, and accordingly did not convert its sulphur-burning installations to take other materials.

Supplies

298. Fisons supplies single superphosphate in powder and granular form containing, respectively, 18 and 19 per cent. of soluble P_2O_5 . Total sales in 1956-57 and 1957-58 amounted to 109,579 and 95,315 tons respectively. In the latter year sales for straight use amounted to about 48,000 tons including the whole of the 28,020 tons of the granular product supplied; the balance of about 47,000 tons of powder was sold to mixers. Sales have declined generally since 1952-53 when 171,774 tons were sold. In recent years the total demand from mixers and farmers has fallen short of Fisons' sales forecasts and surplus manufacturing capacity has been available. The company regards the straight use of single superphosphate as obsolescent though it considers that there will probably always be a small demand for it under appropriate agronomic conditions. Fisons' policy is to dispose of its single superphosphate primarily through compounds while making it available when required by customers.

299. Single superphosphate is distributed from the main fertiliser works and stores; a considerable proportion is collected by customers. As explained in paragraph 220, with minor exceptions Fisons sells directly only to agricultural merchants, co-operative societies and other manufacturers. Fisons' standard prices for single superphosphate are the prices to the farmers for 6-ton lots bagged and delivered to the nearest station. In the latter part of 1957-58 the price in England and Wales for the granular product, 19 per cent. P_2O_5 , was £16 13s. 0d. per ton and for the powder product, 18 per cent. P_2O_5 , £14 18s. 6d.; the prices were reduced to £16 3s. 0d. and £14 8s. 6d. in 1958-59. The corresponding prices in Scotland were £16 7s. 6d. reducing to £15 15s. 6d. for the granular product and £14 15s. 0d. reducing to £14 0s. 0d. for the powder. There are extra charges for smaller quantities. On sales for straight use merchants are given a commission of 11s. 6d. per ton. Certain of these, generally the larger customers, are given an additional "large buyers' discount" of 1s. 6d. per ton. The merchant's commission was increased from 10s. per ton to the present figure in 1956-57, the large buyers' discount remaining unaltered. The collection allowance for customers taking delivery ex works was 12s. 6d. per ton until October, 1958, when it was increased to 14s.

300. For supplies of single superphosphate to "genuine mixers" Fisons charges the price to farmer less allowances which are, within certain limits, negotiated. The company has explained that the "maximum allowance is fixed as a result of a policy decision based on the amount which it is felt should be given to the mixers to encourage them to buy home-produced

superphosphate and to contract for fixed tonnages. Once the maximum has been decided an allowance is then negotiated with individual mixers taking into account the size of each order and the willingness of the customer to take material fairly regularly throughout the year”.

301. The allowances in 1958-59 are set out below ; the principal change in recent years has been an increase, made at the beginning of 1958-59, in the maximum “mixing, contract and other allowance” from 5s. to 10s. per ton.

	<i>England and Wales</i>		<i>Scotland</i>
Merchants' commission	11s. 6d. per ton	} °	11s. 6d. per ton
Large Merchants' discount	1s. 6d. per ton		1,000/2,499 tons—1s. per ton 2,500/4,999 „ —2s. „ „ 5,000 tons and over 3s. per ton
Mixing, Contract and other allowances.	10s. per ton maximum (to be negotiated.)		1s. per ton or as circumstances warrant.
Bulk allowance...	20s. per ton maximum	...	8s. 6d. per ton but may be increased if circumstances warrant.
Unscreened allowance...	2s. per ton maximum	...	At discretion of Sales Manager but maximum 2s. per ton.
Ex Works allowance ...	Actual cost which would have been incurred when delivered by cheapest method.		6s. per ton but may be varied as circumstances warrant.
Early Delivery Rebates			
July	12s. per ton		12s. per ton
August	10s. „ „		10s. „ „
September	8s. „ „		8s. „ „
October	6s. „ „		6s. „ „
November	4s. „ „		4s. „ „
December	2s. „ „		2s. „ „
January-June ...	Nil		Nil

(2) *Scottish Agricultural Industries Limited*

Production and raw materials

302. S.A.I. manufactures single superphosphate at two of its main works. Production amounted to 191,000 tons in 1955-56, 181,000 tons in 1956-57 and 115,000 tons in 1957-58. About two-thirds has been retained for use in S.A.I.'s own compound fertilisers. Up to and including the fertiliser year 1957-58 S.A.I. obtained its supplies of phosphate rock principally from North Africa and Nauru and, jointly with I.C.I., negotiated contracts with the Comptoir des Phosphates and the British Phosphate Commissioners. Grade for grade they paid substantially the same f.a.s. prices as other purchasers in the United Kingdom and were allowed the same invoice rebates by the Comptoir in consideration of their obtaining all their requirements from North Africa other than limited amounts from Nauru. Since 1957-58 S.A.I. has purchased its requirements of high grade rock from the British Phosphate Commissioners and, to a smaller extent, from America ; as a result, any purchases of low grade rock it makes from the Comptoir no

* In England and Wales the Merchants' commission of 11s. 6d. and Large Merchants' discount of 1s. 6d. are consolidated into one allowance of 13s. per ton for mixers.

longer qualify for the rebate obtained by other buyers in the United Kingdom. S.A.I., as an associated charterer, uses the shipping arrangements negotiated by the P.R.A. (see paragraphs 99–101). S.A.I. manufactures the bulk of the sulphuric acid required for its superphosphate production.

Supplies

303. S.A.I. supplied 57,100 tons of superphosphate in 1956–57, and 48,492 in 1957–58. Of the three grades supplied, two were in powder form containing respectively 18 and 21 per cent. P_2O_5 , and the other in granular form containing 20 per cent. P_2O_5 . Since July, 1958, the 18 per cent. powder and 20 per cent. granular products have been discontinued and a 22 per cent. granular product has been introduced. In 1957–58 rather less than 8,000 tons was sold for straight use, and of this about 20 per cent. was in granular form. Supplies include a very small proportion of superphosphate bought from other manufacturers. The classes of customer supplied in order of size are farmers' societies and co-operatives, some of whom are compounders, other compounders, farmers and merchants. Distribution is from the fertiliser works and, to a small extent, from stores. More than half is collected ex works, the remainder being delivered by road, rail and sea. The standard price is the price to the farmer for 5-ton lots, packed in bags, delivered to the nearest station. In the latter part of 1957–58 prices were £14 15s. 0d. per ton for the 18 per cent. grade, £17 3s. 0d. for the 21 per cent. grade and £17 1s. 0d. for the 20 per cent. granular product. Buyers taking delivery ex works receive a collection allowance of 6s. per ton. Buyers taking delivery in bulk (commonly compounders taking unscreened superphosphate) receive allowances which are individually negotiated.

304. Merchants and compounders are allowed commission which is subject to individual negotiation but is normally not less than 10s. per ton, and may be more, depending largely on the tonnage purchased, the competition involved, and whether the sale is a spot one or under a period contract. Compounders are allowed the following early delivery rebates:

								<i>Per ton</i>
July	...	...	...	...	...	...	...	12s.
August	...	...	...	...	...	...	...	10s.
September	...	...	...	...	...	...	...	8s.
October	...	...	...	...	...	...	...	6s.
November	...	...	...	...	...	...	...	4s.
December	...	...	...	...	...	...	...	2s.

They may also receive by individual negotiation certain additional allowances ("further inducements"), to encourage them to spread their compound production and demand for superphosphate as evenly as possible over the year, and allowances for taking delivery in bulk and unscreened.

(3) Other Producers of Single Superphosphate

305. There are twelve other companies which produce and market single superphosphate, nine in England, one in Scotland and two in Northern Ireland. The names of some of these producers have been given in paragraph 89. All are members of the Superphosphate Manufacturers' Association Ltd. (S.M.A.). Each of these concerns also manufactures compounds and

uses for this purpose a proportion of the superphosphate it produces ; eleven produce and market ground rock phosphate and all of them have some merchanting business in other fertilisers. Supplies of single superphosphate of their own manufacture from this group amounted to 105,135 tons in 1956-57 and 110,904 tons in 1957-58. Of these amounts the eight producers named in paragraph 89 supplied 93,279 and 99,373 tons respectively.

Production and raw materials

306. A number of varying processes and types of plant are used ; two producers have plants of their own design and construction. No royalties or licence fees are now being paid, but in a few cases a lump sum or consolidated royalty was paid for the use of a process or type of plant at the time of installation. All the producers except one have granulating plant and can supply superphosphate in both powder and granular form. Phosphate rock is obtained through the P.R.A., of which each producer is a member, under the arrangements described in paragraphs 99-101. The majority of the producers make their own sulphuric acid, though two of them supplement their own production by purchases from outside.

Supplies

307. The largest of these producers sell superphosphate entirely, or almost entirely, to merchants and compounders ; two of the smaller suppliers sell only to farmers ; the others sell to both classes of customer but principally to the former. About two-thirds of the superphosphate sold by these producers goes to compounders. Prices are quoted on the basis of 6-ton lots, generally "delivered farm", with allowances for collection ex works and in some cases an allowance for collection at nearest station. One small English producer quotes delivered station with an allowance for collection ex works ; two English producers quote prices both delivered farm and ex works and the two producers in Northern Ireland quote ex works or f.o.r. In recent years the standard prices to farmers have been generally in line with those charged by the larger suppliers, and the extras for smaller quantities than 6-ton lots have also been similar. Merchants' and compounders' commissions in recent years have varied from 10s. to 18s. per ton, and compounders' allowances from 10s. to 18s.

B. Triple Superphosphate

(1) Fisons Limited

308. Fisons manufactures triple superphosphate at its Immingham works only. Production began in 1951-52, and amounted to nearly 76,000 tons in 1954-55, 88,000 tons in 1956-57 and about 108,000 tons in 1957-58. A considerable proportion, amounting to about three-quarters in 1957-58, is retained for the manufacture of concentrated compounds. The process of manufacture used at Immingham (the "Dorr Oliver") is briefly described in paragraph 42. Fisons made a lump sum down payment for the use of this process when the plant was set up. The bulk of the sulphuric acid used in the initial production of phosphoric acid is made at Immingham by the contact process. For triple superphosphate production high grade Moroccan rock is the principal rock used.

309. Fisons supplies triple superphosphate in granular and powder form containing 47 per cent. and 44 per cent. P_2O_5 respectively. Total supplies by the company amounted to 29,218 tons in 1956-57 and 25,897 tons in 1957-58. In the latter year 16,653 tons, in granular form, were sold for straight use, the remainder, in powder form, being sold for mixing. Supplies are at a lower level now than in 1952-53 when nearly 36,000 tons were supplied, all for straight use. As we have already said in paragraph 183, until 1954-55 Fisons did not supply triple superphosphate for mixing purposes. Since then triple superphosphate, whether for straight use or mixing, has been available in excess of demand.

310. Fisons' arrangements for the supply of the granular triple superphosphate which is sold for straight use are similar to those described above for single superphosphate. The price per ton was £40 2s. 6d. in the latter part of 1957-58 and £38 17s. 6d. in 1958-59. Prices in Scotland were the same as in England and Wales. The merchants' commission is 30s. per ton and the large buyers' discount 2s. 6d. For sales of triple superphosphate powder to mixers, prices are quoted in bulk f.o.r. or ex works Immingham. In 1958-59 the price was £30 5s. 0d. per ton, with the following early delivery rebates:

							<i>Per ton</i>		
							£	s.	d.
July	...	...	...	...	...	...	1	0	0
August	...	...	...	...	...	...	17	6	
September	...	...	...	...	...	...	15	0	
October	...	...	...	...	...	...	12	6	
November	...	...	...	...	...	...	10	0	
December	...	...	...	...	...	...	5	0	
January-June	...	...	...	...	...	...	Nil		

(2) *Other Producers of Triple Superphosphate*

311. As already indicated in paragraph 88 there are only two other producers of triple superphosphate for supply in the United Kingdom and sales from these sources amounted to only 864 and 960 tons in 1956-57 and 1957-58 respectively. It is understood that most of these supplies are made for mixing. The two companies also retain some of their production for use in making their own compounds. A third company manufactures triple superphosphate for use only in its own compounds; the process used does not yield triple superphosphate in a form suitable for sale as such.

II. Class (d): GROUND ROCK PHOSPHATE

312. The reference is concerned only with the supply of ground rock phosphate for use as fertiliser. Supplies for this purpose have declined in recent years and, according to figures obtained from the Agricultural Departments, deliveries to farmers, which amounted to over 65,000 tons in 1953-54, had fallen to less than 30,000 tons in 1954-55 and were just under 25,000 tons in 1957-58. Ground rock phosphate for direct application normally contains 29 to 29½ per cent. P_2O_5 and is made from Gafsa rock and not from the other types of rock used for the manufacture of superphosphate. The same product is also supplied to other manufacturers for

the production of compounds, principally P.M.P. (potassic mineral phosphate), mixture of ground rock phosphate and muriate of potash. The principal suppliers are Fisons and S.A.I.

(1) *Fisons Limited*

313. Ground phosphate rock of the kind used for straight application, described by Fisons as G.N.A.P. (Ground North African Phosphate), containing 29 per cent. P_2O_5 , was produced in 1957-58 at seven of Fisons' works. Total sales, for straight use and compound production, have declined in recent years from about 47,000 tons in 1952-53 to 9,000 in 1957-58. Of the sales in the latter year about 7,000 tons, as far as we can estimate, were for straight use.

314. Fisons has estimated that its share of total ground rock phosphate supplies was less than 4 per cent. in 1938-39 and that it had risen to 35 per cent. by 1944-45. Fisons ascribes this increase partly to war-time developments. At the beginning of the war the company had some surplus grinding capacity released by the rationalisation of superphosphate production in a smaller number of units. When supplies of Moroccan rock, which does not require so much grinding, had to be replaced by harder rock from Florida this capacity was utilised and expanded at the Government's request. It was probably the consequent availability of the capacity for meeting the demand for ground rock when other fertilisers were scarce that accounted for the large increase in Fisons' share of the trade in G.N.A.P. Fisons does not expect that the decline in demand for this fertiliser will be reversed.

315. Fisons' distribution and selling arrangements for G.N.A.P. are similar to those described for single superphosphate for straight use. The price in the latter part of 1957-58 was £12 12s. 0d. per ton and in 1958-59 £11 17s. 0d. The corresponding prices in Scotland were £11 13s. 0d. and £10 18s. 0d. The merchants' commission was 9s. per ton and the large buyers' discount 1s.

(2) *Scottish Agricultural Industries Limited*

316. S.A.I. manufactures ground rock phosphate at the works at which superphosphate is produced and also purchases marginal quantities from other suppliers. Two grades containing respectively 29 and 29½ per cent. P_2O_5 are made. Total sales have declined from 19,000 tons in 1952-53 to 10,183 tons in 1957-58. S.A.I. estimates the amount sold for straight use in 1952-53 as 11,700 tons; in 1957-58 it was probably less than half the total sales. S.A.I.'s customers for ground rock are, in order of size, farmers' co-operative societies, farmers, compounders and merchants. The bulk is distributed from the main works and about one-third is collected by customers. Prices are quoted for 6-ton lots and normally include delivery to the farmers' nearest station. The prices for the two grades were £11 12s. 0d. and £11 16s. 0d. per ton in 1957-58 and £10 17s. 6d. and £11 1s. 6d. in 1958-59. The merchants' commission is subject to negotiation and amounts generally to 8s. 6d. per ton or a little more.

(3) *Other Producers of Ground Rock Phosphate*

317. There are seventeen other producers of ground rock phosphate. Of these ten also manufacture single superphosphate and belong to the S.M.A. and the Fertiliser Manufacturers' Association Ltd. (F.M.A.), and six belong

to the F.M.A. only. Total sales from this group amounted to about 17,000 tons in 1956-57 and also in 1957-58. In the light of the Agriculture Departments' figures (see paragraph 312) about two-thirds or more of the sales in 1957-58 appear to have been for straight use.

III. Class (e): BASIC SLAG

318. The reference is concerned only with the supply of basic slag as a fertiliser. In fact only very small amounts are supplied for mixing purposes. The consumption of basic slag in recent years has tended to increase; according to figures compiled by the Agricultural Departments, deliveries to farms amounted to about 613,000 tons in 1953-54 and 750,106 tons in 1957-58. Basic slag is used in larger quantities than the other straight phosphatic fertilisers. The 1957-58 consumption was equal to more than five times that of straight superphosphate and ground rock phosphate in tons of product, and about three times in tons of P_2O_5 . The principal suppliers are Fisons, British Basic Slag Ltd. (B.B.S.) and S.A.I.

(1) *Fisons Limited*

319. Fisons' supplies of basic slag are principally obtained from its wholly-owned subsidiary company, Corby Basic Slag Ltd. (C.B.S.). The balance is imported (about 15 per cent. by tonnage of the company's total supplies in 1957-58) or, to a minor extent, bought from other United Kingdom producers. Fisons' total supplies amounted to 309,759 tons in 1956-57 and 304,863 tons in 1957-58.

Corby Basic Slag Ltd.: production arrangements

320. C.B.S. operates a basic slag grinding and crushing plant at Corby, Northamptonshire; the plant was purchased from Stewarts and Lloyds Ltd. in 1935 and the site has been leased from the company from the same year. The raw slag, of Bessemer origin, is purchased from Stewarts and Lloyds Ltd., ground and put into sacks or trucks. Imported raw slag has also on occasion been ground at Corby, though only in very small quantities in recent years. C.B.S. also purchases ground slag of Bessemer origin from Richard Thomas & Baldwins Ltd. at Ebbw Vale, the latter company being responsible for grinding and packing or loading. Until early in 1956 C.B.S. also obtained small quantities of basic slag of open-hearth origin from grinding mills at Gowerton and Panteg.* The mills were closed early in 1956 on Fisons' initiative because the raw slag was of low grade and the product not readily saleable.

Agreements with the steel companies

321. The arrangements for C.B.S.'s purchases of raw slag from Stewarts and Lloyds Ltd. are set out in an agreement of 30th April, 1940, as amended in 1943 to give effect to a change in the financial year; this succeeded the original agreement of 1st May, 1935, made when C.B.S. was set up as a subsidiary of National Fertilizers Ltd. The arrangements for purchases

* The sites were leased from Richard Thomas & Baldwins Ltd. and the mills originally belonged to Baldwins, but ownership was never thereafter clearly resolved. When they were given up the Gowerton mills were treated as belonging to Richard Thomas & Baldwins Ltd. and the Panteg mills as belonging to Fisons as the parent company. Until then C.B.S. had been responsible for the operation of the mills and reimbursed Richard Thomas & Baldwins Ltd. for the labour costs involved.

of ground slag from Richard Thomas & Baldwins Ltd. are set out in an agreement of 28th February, 1938. The principal provisions of the two existing agreements may be summarised as follows:

- (1) The agreement with Stewarts and Lloyds Ltd. requires the latter to sell and C.B.S. to purchase all the raw basic slag containing not less than $17\frac{1}{2}$ units of P_2O_5 and with a citric solubility of not less than 80 per cent. produced in Stewarts and Lloyds Ltd.'s Basic Bessemer plant, subject to a provision for the return of slag required for charging the blast furnaces. The price to be paid by C.B.S. is at the rate of 50 per cent. of the net average price per ton (free on train at works, less cost of bags and sales discounts) realised by C.B.S. on its annual sales of all grades of Corby ground slag and Ebbw Vale ground slag (with a proviso of a minimum price, calculated by reference to the P_2O_5 content for the first 50,000 tons of raw slag) plus 45 per cent. of the profit. If C.B.S. grinds imported slag it makes a payment to Stewarts and Lloyds Ltd. at the rate of 1s. $1\frac{1}{2}$ d. for each ton sold.
- (2) The agreement with Richard Thomas & Baldwins Ltd.* requires the latter to grind and sell, and C.B.S. to buy, all the basic slag containing not less than $17\frac{1}{2}$ units of P_2O_5 with a citric solubility of not less than 80 per cent. produced at the Ebbw Vale Bessemer steel plant. Richard Thomas & Baldwins Ltd. may use such raw slag as it requires for charging its steel plant and blast furnaces and may take up to 4,500 tons in any year for mixing with other slags at Cwmfelin to produce low-grade slag (see paragraph 334). The price to be paid by C.B.S. is at the rate of 90 per cent. of the net average price per ton (free on train at works less cost of bags, rebates and discounts) realised by C.B.S. on its annual sales of all grades of ground Ebbw Vale slag and Corby slag.
- (3) Both agreements provide for adjustment in terms should the content of the slag delivered in any month fall below the standard stipulated. Both announce the intention of the signatories that Ebbw Vale and Corby ground slag shall contain approximately the same number of units of P_2O_5 per ton and provide that if in any half-year the average content of the one differs by more than two units from that of the other a reasonable adjustment in terms shall be made.

322. For technical reasons ground slag contains approximately $1\frac{1}{2}$ units of P_2O_5 less than the raw slag from which it is made, and consequently raw slag with $17\frac{1}{2}$ per cent. P_2O_5 yields a ground slag with approximately 16 per cent. In fact the average content of the slag obtained by C.B.S. from its suppliers in recent years has been lower than this, and the average content of Ebbw Vale slag has been markedly lower than that from Stewarts and Lloyds Ltd. In practice, C.B.S. has taken the entire output from both sources, and in calculating the remuneration of the two steel companies the average realised price per ton has been taken as that realised on sales of slag obtained from the company concerned and not on sales of slag from both. The payments made to Richard Thomas & Baldwins Ltd. have been reduced by a small contra-payment per ton to compensate for the lower grades obtained.

* The signatory in 1938 was Richard Thomas and Co. Ltd.

Imports

323. Fisons buys its supplies of imported ground basic slag from the Diamond Fertiliser & Chemical Company Ltd., the selling agent of the Syndicat Belge des Scories Thomas, Brussels, which markets basic slag from the steel works of Belgium and Luxemburg, and of the Société Nationale pour la Vente des Scories Thomas, Paris, which markets basic slag from the steelworks of France. Raw slag is obtained in small quantities from the same source. Fisons places its contracts annually and there has been an informal understanding that, so long as it purchased satisfactory quantities of French and Belgian slag, the suppliers would not seek other outlets than Fisons and S.A.I. in Great Britain.* The arrangement is a legacy from the early days of decontrol when Fisons, S.A.I. and B.B.S., and subsequently Fisons and S.A.I., took over the procurement of Continental supplies (see Chapter 4). Fisons regards the agent and its suppliers as free to make other arrangements when the current contract expires.†

Distribution and sales

324. Basic slag is distributed from Corby, Ebbw Vale, some of Fisons' own works and the main ports. Sales are made to agricultural merchants, farmers' co-operative societies and other manufacturers. As in the case of other fertilisers the only direct sales to farmers are made through George Hadfield and Co. Ltd. Prices are quoted for minimum 6-ton lots, delivered to the farmer's nearest station, and vary according to the grade. Since August, 1957, prices in England and Wales have ranged from £6 9s. 6d. for the 11 per cent. P_2O_5 grade to £8 0s. 3d. for the 16 per cent. and £8 9s. 3d. for the 17 per cent. grades. Prices in Scotland have been a little higher, that for the 16 per cent. grade being £8 5s. 3d. Prices for imported slag have ranged from £10 19s. 6d. for the 18 per cent. grade to £12 19s. 6d. for the 22 per cent. grade in England, Wales and Scotland. The merchants' commission is 7s. per ton for home-produced slag and 8s. for imported slag. Certain wholesale distributors receive in addition a large buyers' discount of 1s. 6d. per ton. For collection ex works or, in the case of imported slag ex port, an allowance based on mileage is given. Until October, 1958, the scale used was that formerly recommended by the Basic Slag Producers Association (B.S.P.A.). Since then the allowances have been increased; the minimum, for a distance not exceeding fifteen miles, from 6s. to 6s. 6d. and the maximum, for a distance over 300 miles, from 45s. to 49s.

325. Fisons' sales of basic slag amounted to 309,759 tons in 1956-57 and 304,863 tons in 1957-58. In the latter year these sales comprised 167,362 tons ex Corby (grades 15 and 16 per cent. P_2O_5), 90,100 tons ex Ebbw Vale (grades 11, 12 and 13 per cent. P_2O_5), and 47,401 tons of imported basic slag (grades 17 to 21 per cent. P_2O_5).

(2) British Basic Slag Limited

326. B.B.S. obtains its supplies of basic slag from the following of its member companies: Dorman Long and Co. Ltd., United Steel Companies Ltd., Patent Shaft and Axletree Co. Ltd., Shelton Iron & Steel Co. Ltd., South Durham Steel & Iron Co. Ltd. and Colvilles Ltd. The other two members of B.B.S. ceased to grind and supply basic slag for fertiliser

* The arrangement does not include Northern Ireland.
† In S.A.I.'s view the understanding has already lapsed.

purposes in 1951 and 1956 respectively. These supplies of basic slag are all of open-hearth origin. As from about July, 1959, B.B.S. will also be drawing supplies of basic slag of Bessemer origin from the Steel Company of Wales Ltd. B.B.S. has not supplied imported basic slag since June, 1954. In the preceding years it had participated in arrangements made by the B.S.P.A. for the distribution and later the procurement of Continental basic slag (see paragraph 245).

Production and distribution

327. As we have already explained in paragraph 247 the production and grinding of basic slag is primarily the responsibility of the steel companies : B.B.S. is essentially a selling organisation and does not carry out any physical process on the slag it supplies. There is considerable variation in the grades and amounts of basic slag produced by the various members. In 1957-58* the grades sold ranged from 6 to 15 per cent. ; sales are made through B.B.S. in all cases and, in general, orders are passed on to members on the basis of the proximity of their works to the point where delivery is to be made and the kind of slag required. Slag is distributed from members' works by rail, road haulier, or customer's transport. The greater part is supplied in bags, the rest in bulk. Transport in bulk is principally by road in spreading vehicles or lorries belonging to or hired by customers. The arrangements for spreading are left in all cases to B.B.S.'s customers. Under the agreements made with B.B.S. each supplier receives the proceeds of the sale of his own slag, less deductions made by B.B.S. to cover carriage, other expenses, preference dividends and income tax (see paragraph 248).

Sales

328. Apart from sales to other fertiliser manufacturers, principally S.A.I., and some trivial sales for non-fertiliser purposes, B.B.S. sells only to agricultural merchants (including certain manufacturers buying as merchants), co-operative societies and wholesale distributors. No sales are made direct to farmers or agricultural contractors unless the latter are also agricultural merchants. Grade for grade, prices are the same for all B.B.S.'s sales, irrespective of the source of supply, and are quoted for sale in bags delivered to the station nominated by the buyer. Prices since August, 1957, have ranged from £5 0s. 6d. per ton for the 6 per cent. grade to £7 16s. 6d. for the 16 per cent. grade. The merchants' commission is 7s. per ton. Certain wholesale distributors receive an over-riding commission varying from 1s. 6d. to 2s. 6d. per ton (fixed by arrangement and not related to quantity) on their sales to merchants or farmers' co-operative societies ; the C.W.S. receives an over-riding commission of 1s. 6d. per ton on sales invoiced through it to farmers' co-operative societies. Buyers taking delivery ex works receive a haulage allowance based on a scale which is the same as that formerly recommended by the B.S.P.A. (see paragraph 324). For delivery in bulk there are allowances of 10s. (in customer's vehicle) and 7s. 6d. (at station in railway "L" containers) per ton. For delivery at farm by road, when it can be arranged an extra 8s. 6d. per ton is charged.

329. B.B.S.'s sales of basic slag amounted to 278,672 tons in 1956-57 and 283,564 tons in 1957-58. In the latter year 150,020 tons, over half

* B.B.S.'s year is from 1st October to 30th September.

of the total supplies, were accounted for by sales of the 13 and 14 per cent. grades of which about two-thirds came from one member; there were substantial sales, viz. 13,500 tons, in the 15 per cent. grade and of the remainder the greater part, viz. nearly 112,000 tons, was accounted for by sales of grades 8 to 12 per cent.

(3) *Scottish Agricultural Industries Limited*

Production

330. S.A.I. has basic slag works at Scunthorpe and Skinningrove which it operates on a joint account basis with John Lysaght's Scunthorpe Works Ltd. and the Skinningrove Iron Company Ltd., respectively. In each case the steel company provides the site and supplies the raw slag and S.A.I. provides and operates the grinding plant and buildings and is responsible for marketing the ground slag. In each case the joint account is debited with all production and bagging costs and amounts in respect of depreciation and selling costs, and credited with the value of sales. The net difference (whether debit or credit) is divided between the steel works and S.A.I. in agreed proportions. The slag is of open-hearth origin with a P.O. content varying from 8 to 12 per cent.

Imports

331. S.A.I. also sells Continental basic slag obtained through the Diamond Fertiliser & Chemical Co. Ltd. under arrangements similar to those made with Fisons and described in paragraph 323 above.

Distribution

332. In addition to sales of its own production and of imported slag, S.A.I. also sells basic slag bought from other United Kingdom suppliers, principally B.B.S. Sales are made to farmers, agricultural merchants and farmers' co-operative societies. The bulk is distributed ex works or ex quay. Some supplies are collected by customers. Sales are normally made in minimum 6-ton lots packed in bags and prices include delivery to the buyer's nearest station. Prices since August, 1957, have ranged from £5 10s. 6d. for the 8 per cent. grade to £7 16s. 6d. for the 16 per cent. grade. (This grade and some others have been bought from B.B.S.) Prices for imported slag have ranged from £10 19s. 6d. for the 18 per cent. grade to £13 9s. 6d. for the 23 per cent. grade. There are extra charges for smaller lots. Buyers taking delivery in bulk obtain an allowance of 10s. per ton. Buyers who collect ex producing works or ex quay obtain an allowance based on mileage on a scale formerly recommended by the B.S.P.A. (see paragraph 324). The merchants' commission is 7s. per ton on home-produced and 8s. per ton on imported slag, with an additional allowance on the imported material when the merchant takes a full cargo. As distinct from other fertilisers sold by S.A.I. its slag is sold on a substantial scale in England and Wales as well as in Scotland. I.C.I. acts as its agent for sales in England and Wales, and receives a commission of 2s. 6d. per ton for this service.

333. S.A.I. supplied 125,202 tons of basic slag in 1956-57 and 145,365 tons in 1957-58. In the latter year about one-third of the supplies were imported and about one-twelfth purchased from other United Kingdom suppliers, principally B.B.S.

(4) Other Suppliers of Basic Slag

334. The other United Kingdom producers of basic slag are Richard Thomas & Baldwins Ltd., as suppliers from their Cwmfelin works,* and Stanhope Lime and Limestone Co. Ltd., Bishop Auckland. In each case the slag supplied is of open-hearth origin. The slag produced at Cwmfelin consists for the most part of 7 and 8 per cent. grade and is sold to agricultural merchants, principally in the West Wales area. Stanhope Lime and Limestone Co. Ltd. has ground and supplied basic slag since February, 1957. The raw slag, of 6 to 10 per cent. P_2O_5 content, is obtained from Consett Iron Company Ltd., and the product is sold to merchants and farmers. Supplies from these sources amounted to 7,303 tons in 1956-57 and 13,066 tons in 1957-58. The prices charged are generally in line, grade for grade, with those charged by B.B.S. Another steel producer marketed basic slag on a small scale until December, 1954, when production was discontinued on account of the difficulty of marketing the low grade produced.

335. In Northern Ireland imported basic slag is distributed by a number of fertiliser manufacturers and merchants who purchase their requirements from the Diamond Fertiliser & Chemical Co. Ltd., the agent for the Continental suppliers. Supplies amounted to 20,683 tons in 1956-57 and 24,503 tons in 1957-58.

CHAPTER 10.

THE SUPPLY OF COMPOUND FERTILISERS (Class (f))

336. More than half of the chemical fertilisers consumed in the United Kingdom are in the form of compounds. The relationship in 1957-58, in tons of product and of nutrient content, is shown in the table below;† in terms of selling price the proportion attributable to compounds would be higher.

	Product	N	K_2O	P_2O_5 , water soluble	P_2O_5 , other
All Chemical Fertilisers ...	4,202,981	315,310	[299,573]	245,038	141,169
Compound Fertilisers ...	2,365,815	185,576	299,573	218,537	32,064

* Open-hearth basic slag has been supplied from Cwmfelin since 1911. The company's basic Bessemer slag from its Ebbw Vale works is sold to Corby Basic Slag Ltd. (see paragraph 321 above).

† The figures in these two tables are provided by the Agricultural Departments and derived from returns by farmers of deliveries to them. Broadly speaking, they cover fertilisers within our terms of reference, but as regards the figures for "all chemical fertilisers" in the first table it should be noted that (1) deliveries of Nitra-Shell, which is not within our reference, are included, and (2) no returns are obtained for deliveries of potash for straight use, which are, therefore, excluded. As regards the tonnages of compounds delivered, the differences between these figures and those given in paragraph 21 are such as might be expected, the figures above representing deliveries to consumers as notified by the consumers and those in paragraph 21 sales by manufacturers, importers, etc. to their immediate customers, generally merchants. As regards the tonnage figures for "all chemical fertilisers", these are not comparable with the aggregate of the tonnage figures for the six classes of fertilisers given in paragraph 21 since the latter include, in respect of classes (a), (b) and (c), sales to compounders.